IN THE CLAIMS:

The following is a complete list of all pending claims:

1. (original) A method for determining the effectiveness of cardiac resynchronization therapy while stimulating a patient's heart at different locations during an electrophysiology study, comprising the steps of:

(a) collecting seismocardiographic (SCG) data corresponding to heart motion during paced beats of said patient's heart;

(b) collecting seismocardiographic (SCG) data corresponding to heart motion during un-paced beats of said patient's heart;

(c) determining hemodynamic and electrophysiological parameters based on the SCG data of steps (a) and (b); and

(d) determining whether cardiac performance is improved by comparing said hemodynamic and electrophysiological parameters generated by step (a) with those generated by step (b) .

2. (original) The method of claim 1, wherein the SCG data of steps (a) and (b) are detected by an accelerometer.

3. (original) The method of claim 1, wherein said hemodynamic and electrophysiological parameters of step (c) are selected from the group consisting of one or more of the following: a

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pre-ejection period, a rate of contraction of left ventricle, a duration of systole, a duration of an isovolumic relaxation period, a rate of change of ventricular pressure, and an ejection fraction.

4. (original) The method of claim 1, wherein a ventricular contraction mapping is generated from the SCG data collected in steps (a) and (b).

5. (original) The method of claim 3, wherein the pre-ejection period is determined from a ventricular contraction mapping.

6. (original) The method of claim 3, wherein the rate of contraction of left ventricle is determined from a ventricular contraction mapping.

7. (original) The method of claim 3, wherein the duration of systole is determined from a ventricular contraction mapping.

8. (original) The method of claim 3, wherein the duration of isovolumic relaxation period is determined from a ventricular contraction mapping.

9. (original) The method of claim 4, wherein the a rate of change of ventricular pressure is determined from a ventricular contraction mapping.

10. (original) The method of claim 1, further including the step of

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(e) determining whether left ventricular or biventricular pacing is more beneficial to said patient by comparing said hemodynamic and electrophysiological parameters generated by step (a) with those generated by step (b).

11. (original) A method for selecting an optimal placement of leads of a cardiac pacing device for cardiac resynchronization therapy during implantation comprising the steps of:

(a) selecting a lead placement location to place a lead of said cardiac pacing device;

(b) collecting seismocardiographic (SCG) data corresponding to heart motion during paced beats of a patient's heart;

(c) determining hemodynamic and electrophysiological parameters based on the SCG data of step (b);

(d) repeating steps (a)-(c) for other lead placement locations for said cardiac pacing device; and

(e) selecting a lead placement location that provides a best cardiac performance by comparing said hemodynamic and electrophysiological parameters of step (c) for each different lead placement location.

12. (original) The method of claim 11, wherein the SCG data of step (b) are detected by an accelerometer.

13. (original) The method of claim 11, wherein said hemodynamic and electrophysiological parameters of step (c) are selected from the group consisting of one or more of the following: a

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pre-ejection period, a rate of contraction of left ventricle, a duration of systole, a duration of an isovolumic relaxation period, a rate of change of ventricular pressure, and an ejection fraction.

14. (original) The method of claim 11, wherein a ventricular contraction mapping is generated from the SCG data collected in step (b).

15. (original) The method of claim 13, wherein the pre-ejection period is determined from a ventricular contraction mapping.

16. (original) The method of claim 13, wherein the rate of contraction of left ventricle is determined from a ventricular contraction mapping.

17. (original) The method of claim 13, wherein the duration of systole is determined from a ventricular contraction mapping.

18. (original) The method of claim 13, wherein the duration of isovolumic relaxation period is determined from a ventricular contraction mapping.

19. (original) The method of claim 13, wherein the a rate of change of ventricular pressure is determined from a ventricular contraction mapping.

20. (original) A system that selects an optimal placement of leads of a cardiac pacing device for cardiac resynchronization therapy during implantation, comprising:

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a cardiac pacing device with leads implanted into a patient's heart;

means for collecting seismocardiographic (SCG) data corresponding to heart motion during paced beats of said patient's heart;

means for determining hemodynamic and electrophysiological parameters based on said SCG data; and

a processing device that compares said hemodynamic and electrophysiological parameters;

wherein the optimal placement of leads of said cardiac pacing device is determined by comparing said hemodynamic and electrophysiological parameters for different lead placement locations.

21. (original) The apparatus of claim 20, wherein said means for collecting SCG data comprises an accelerometer.

22. (original) The system of claim 20, wherein said hemodynamic parameters are selected from the group consisting of one or more of the following: a pre-ejection period, a rate of contraction of left ventricle, a duration of systole, a duration of an isovolumic relaxation period, a rate of change of ventricular pressure, and an ejection fraction.

23. (original) The system of claim 20, wherein a ventricular contraction mapping is generated from the SCG data.

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